

**Practitioner's Docket No.:** 789\_129

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the application of: Hiroshi KURACHI, Yuichi SASAKI and Takeya MIYASHITA

Ser. No.: 10/807,859

Group Art Unit: 1795

Filed: March 24, 2004

Examiner: Matthew J. Merkling

Confirmation No.: 5516

For: GAS SENSOR

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATION OF EFS TRANSMISSION**

I hereby certify that this paper is being transmitted via EFS to the Patent and Trademark Office on *July 21, 2008*.

*Janet M. Stevens*  
Janet M. Stevens

**REQUEST FOR RECONSIDERATION  
AFTER FINAL REJECTION**

Sir:

In response to the Office Action mailed February 22, 2008, Applicants respectfully request reconsideration and withdrawal of the rejections of record based on the following arguments. Claims 1-3 and 6-11 are pending herein.

Claims 1-3 and 6-11 were rejected under §103(a) over Kato '181 in view of Yamada, Sugiyama and Kato '335. This rejection is respectfully traversed.

Claim 1 recites a gas sensor comprising a heater for maintaining at least a first space and a second space at a predetermined temperature, wherein a ratio of the lateral width of a gas introducing hole ( $W_c$ ) to the lateral width of an end of the gas sensor element ( $W_e$ ) is  $0.3 \leq (W_c/W_e) < 0.7$ , and a ratio of the distance from a projected

position of an end of the heater on the upper surface of the sensor element ( $L_a$ ) to the lateral width of the end of the gas sensor element ( $W_e$ ) is  $0.2 < (L_a/W_e) < 0.5$ .

Prior art gas sensors exhibit cracking problems in the vicinity of the gas introducing hole as a result of thermal stresses generated in the sensors during use. The present inventors discovered that the above-discussed ratios are critical to reduce the thermal stresses in the vicinity of the gas introducing hole. This discovery allowed the present inventors to overcome the cracking problems exhibited by the prior art gas sensors.

Applicants respectfully submit the attached Rule 1.132 Declaration of Mr. Takeya Miyashita as evidence demonstrating the criticality of the gas introducing hole ratio ( $W_c/W_e$ ) and the heater placement ratio ( $L_a/W_e$ ) recited in claim 1. As detailed in the Rule 1.132 Declaration, gas sensors having ratios with the claimed ranges exhibit improved response and light-off times and acceptable resistance to cracking at the voltages encountered during operation of the gas sensor. The Rule 1.132 Declaration is evidence that rebuts the PTO's asserted *prima facie* case of obviousness, in accordance with MPEP §2144.05. Therefore, the present invention of claim 1 is distinguishable from the cited references for at least the reasons explained in the Amendment filed September 14, 2007.

For at least the foregoing reasons, Applicants respectfully submit that all pending claims herein are in condition allowance. Accordingly, the Examiner is requested to issue a Notice of Allowance for this application in due course.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

July 21, 2008

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